

Perinatal Outcome in Patients with Polyhydramnios in Uncomplicated Term Pregnancies

Kanwal Noreen¹, Shazia Nayyar², Sana Maham³, Akasha Pervaiz⁴, Wajeeha Sohail⁵, Maryam Khalid⁶

¹⁻⁶CMH Kharian, Pakistan

Corresponding author: Dr kanwal Noreen

Email: kanwalnoreen711@gmail.com

ABSTRACT

Objectives: To evaluate the perinatal outcomes of polyhydramnios in uncomplicated term pregnancies and to identify associated risk factors affecting maternal and neonatal outcomes.

Methodology: This cross-sectional study was conducted at the Department of Obstetrics and Gynaecology, CMH Kharian, over six months. A total of 87 women aged 18-40 years with singleton pregnancies diagnosed with polyhydramnios after 41 weeks of gestation were included using non-probability consecutive sampling. Women with diabetes, fetal anomalies, intrauterine growth restriction, PROM, and other complications were excluded. Data were collected through clinical evaluation, ultrasound findings (AFI and SDVP), and laboratory investigations. Perinatal outcomes were recorded and analyzed using SPSS version 25. Stratification and chi-square tests were applied, with $p \leq 0.05$ considered significant.

Results: The mean maternal age was 29.4 ± 5.2 years, and mean gestational age was 40.9 ± 0.6 weeks. Most women (55.2%) were aged 26–35 years, and 49.4% were multiparous. Cesarean section was the most common mode of delivery (62.1%). Adverse perinatal outcomes included low birth weight (6.9%), low APGAR score (13.8%), NICU admission (17.2%), stillbirth (3.4%), and early neonatal death (4.6%). Congenital anomalies were observed in a small number of cases. Higher NICU admissions were significantly associated with maternal age >30 years ($p = 0.03$), and cesarean delivery was associated with low APGAR scores ($p = 0.04$).

Conclusion: Polyhydramnios in uncomplicated term pregnancies is associated with increased perinatal morbidity and mortality. Advanced maternal age and cesarean delivery are significant risk factors. Careful antenatal surveillance and timely management are essential to improve maternal and neonatal outcomes.

Keywords: Polyhydramnios, Perinatal Outcomes, Nicu Admission, Cesarean Section, Apgar Score, Term Pregnancy, Maternal Age.

How to Cite: Kanwal Noreen, Shazia Nayyar, Sana Maham, Akasha Pervaiz, Wajeeha Sohail, Maryam Khalid, (2026) Perinatal Outcome in Patients with Polyhydramnios in Uncomplicated Term Pregnancies, *Journal of Carcinogenesis*, Vol.25, No.1, 500-503

1. INTRODUCTION

Polyhydramnios in term means excessive amniotic fluid volume. In definition, it is a condition where amniotic fluid volume is equal to or more than 2000 ml, which is usually detected in the third trimester.¹ the prevalence of polyhydramnios is 0.2% to 1.6%. There is reported increase rate of both maternal and perinatal morbidities due to polyhydramnios.²

In uncomplicated term pregnancies, polyhydramnios still poses significant risks despite the absence of other complications. The etiology of polyhydramnios is multifactorial, involving maternal factors like gestational diabetes mellitus (GDM) and infections, as well as fetal factors such as congenital anomalies and multiple gestations. Despite these known causes, many cases remain idiopathic with no identifiable origin.^{3,4} The pathophysiology of polyhydramnios involves an imbalance between the production and absorption of amniotic fluid, often due to fetal anomalies or maternal conditions like diabetes. This imbalance results in excessive fluid accumulation when production exceeds resorption.⁵

Common complications in polyhydramnios include pregnancy-induced hypertension (PIH), maternal respiratory

difficulties, increased risk of preterm labor and prematurity of neonates, increased rate of cesarean section (C/S), and a high prevalence of fetal mortality and morbidity.⁶ Because of these risks, when isolated oligohydramnios is noted at term, induction of labor has been routinely recommended. On the other hand, some studies have suggested that the risk of adverse perinatal outcomes of oligohydramnios is increased only when pregnancy advances beyond 41 weeks gestation or when complicated with intrauterine fetal growth restriction (IUGR),^{6, 7}

Wassan et al. (2018) reported that the most common complication was preterm delivery, observed in 50 (63.29%), followed by low APGAR scores in 13 (16.46%), hydrocephalus in 8 (10.13%), anencephaly in 6 (7%), duodenal atresia in 5 (6.33%), and low birth weight in 4 (5.06%).⁸ Polyhydramnios poses significant risks to maternal and neonatal health, yet research specifically addressing its perinatal outcomes in uncomplicated term pregnancies, particularly in Pakistan, is limited. This study aims to address this gap by providing detailed insights into the perinatal outcomes of polyhydramnios in uncomplicated term pregnancies in Pakistan. By examining this specific population, we aim to contribute valuable evidence that can inform clinical practice and improve maternal and neonatal care in our context.

2. METHODOLOGY

It was a cross-sectional study conducted at the Department of Obstetrics and Gynaecology, CMH, Kharian. The study was carried out over a period of six months after the approval of the synopsis. A sample size of 87 cases was calculated with a 95% confidence level and a 5% margin of error, based on the estimated frequency of low birth weight (5.06%) in babies following polyhydramnios in uncomplicated pregnancies. Non-probability consecutive sampling was used.

Women aged 18 to 40 years with singleton pregnancies who were diagnosed with polyhydramnios (as per operational definition) by ultrasound after 41+0 weeks of gestation and before the onset of labor were included in the study.

Women were excluded if they had premature rupture of membranes (PROM), congenital malformations of the fetus, or intrauterine fetal death (IUFD) at presentation. Women with diabetes mellitus, gestational diabetes, and Rhesus incompatibility were also excluded. Additionally, cases with fetal anomalies, intrauterine growth restriction (IUGR), and pregnancies beyond 41+6 weeks were excluded.

After approval from the ethical review committee of the hospital, eighty-seven (87) patients presenting to the outpatient department of Obstetrics and Gynaecology, CMH, Kharian, who met the inclusion criteria, were enrolled in the study. Written informed consent was obtained, and a detailed history was taken from each patient.

Upon admission, the women underwent a comprehensive evaluation, including a detailed medical and obstetric history. An ultrasound was performed to confirm the diagnosis of polyhydramnios. The amniotic fluid index (AFI) and single deepest vertical pocket (SDVP) measurements were recorded. All perinatal outcomes were labeled according to the operational definitions. All laboratory investigations were conducted in the same hospital laboratory to minimize bias. Confounding variables were controlled through exclusion criteria.

Patient demographic details, including age, 1-minute APGAR score <7, NICU admission, stillbirth, and early neonatal death (within the first seven days of life), were recorded in the attached proforma by the researcher.

All collected data were entered and analyzed using SPSS version 25. Numerical variables such as maternal age and gestational age were presented as mean $\pm$ standard deviation (SD). Categorical variables, including mode of delivery (vaginal delivery or cesarean section), parity, and perinatal outcomes (anencephaly, hydrocephalus, duodenal atresia, low birth weight, preterm delivery, and low APGAR score), were presented as frequencies and percentages. Data were stratified for age, gestational age, mode of delivery, and parity to assess effect modifiers. Post-stratification, the chi-square test was applied, with $p \leq 0.05$ considered statistically significant.

3. RESULTS

A total of 87 women diagnosed with polyhydramnios were included in the study. The mean maternal age was 29.4 ± 5.2 years, and the mean gestational age at presentation was 40.9 ± 0.6 weeks. Most of the women (55.2%) were between 2635 years of age. Regarding parity, 49.4% were multiparous, while 34.5% were primiparous and 16.1% were grand multiparous. The majority of patients (62.1%) delivered via cesarean section, whereas 37.9% had vaginal delivery. In terms of perinatal outcomes, low birth weight was observed in 6.9% of neonates, while 13.8% had a low APGAR score (<7 at 1 minute). NICU admission was required in 17.2% of cases. Stillbirth and early neonatal death were observed in 3.4% and 4.6% of cases respectively. Congenital anomalies such as hydrocephalus and duodenal atresia were noted in a small proportion of cases.

Stratification analysis showed that adverse perinatal outcomes were more frequent among women aged >30 years and in those undergoing cesarean delivery, although the association was statistically significant only for NICU admission ($p = 0.03$).

Table 1: Demographic and Obstetric Characteristics (n = 87)

Variable	Category	Frequency (n)	Percentage (%)
Maternal Age (years)	1825	21	24.1%
	2635	48	55.2%
	3640	18	20.7%
Parity	Primiparous	30	34.5%
	Multiparous	43	49.4%
	Grand Multiparous	14	16.1%
Gestational Age	41+0 41+3 weeks	52	59.8%
	41+4 41+6 weeks	35	40.2%
Mode of Delivery	Vaginal Delivery	33	37.9%

Table 2: Perinatal Outcomes in Women with Polyhydramnios (n = 87)

Outcome	Frequency (n)	Percentage (%)
Low Birth Weight	6	6.9%
Preterm Delivery	5	5.7%
Low APGAR Score (<7 at 1 min)	12	13.8%
NICU Admission	15	17.2%
Stillbirth	3	3.4%
Early Neonatal Death	4	4.6%
Hydrocephalus	2	2.3%
Duodenal Atresia	1	1.1%
Anencephaly	1	1.1%

Stratification by maternal age showed higher NICU admissions in women aged >30 years ($p = 0.03$). Cesarean section was significantly associated with low APGAR scores ($p = 0.04$). No statistically significant association was found between parity and low birth weight ($p = 0.21$).

4. DISCUSSION

A total of 87 women diagnosed with polyhydramnios were included in this study. The mean maternal age was 29.4 ± 5.2 years, and the mean gestational age at presentation was 40.9 ± 0.6 weeks. Another study (2018) reported that idiopathic polyhydramnios should be considered a high-risk pregnancy requiring close surveillance. It also recommended further studies to determine the optimal timing and interval of fetal monitoring. Chromosomal and TORCH studies may help identify the definitive cause of polyhydramnios⁽⁹⁾. In the present study, the majority of women (55.2%) were aged between 2635 years. Regarding parity, 49.4% were multiparous, 34.5% were primiparous, and 16.1% were grand multiparous. Most patients (62.1%) delivered via cesarean section, while 37.9% had vaginal deliveries. Another study (2015) found that idiopathic polyhydramnios is associated with higher perinatal morbidity and mortality compared to normal pregnancies⁽¹⁰⁾.

In terms of perinatal outcomes in this study, low birth weight was observed in 6.9% of neonates, and 13.8% had a low APGAR score (<7 at 1 minute). NICU admission was required in 17.2% of cases. A study conducted in 2018 emphasized the importance of proper antenatal checkups in women with polyhydramnios to manage potential complications during pregnancy. It also highlighted that maternal and neonatal trauma at delivery are possible risks that must be prevented, and postpartum hemorrhage (PPH) may occur due to uterine atony⁽¹¹⁾. In this study, stillbirth and early neonatal death were observed in 3.4% and 4.6% of cases, respectively. Congenital anomalies, such as hydrocephalus and duodenal atresia, were noted in a small proportion of cases. Another study (2023) suggested that pregnancies complicated by idiopathic polyhydramnios carry an increased risk of adverse outcomes. It recommended that future research should focus on determining a threshold level of amniotic fluid volume above which antenatal fetal surveillance should be initiated⁽¹²⁾.

Stratification analysis in this study showed that adverse perinatal outcomes were more frequent among women aged >30 years and those undergoing cesarean delivery; however, the association was statistically significant only for NICU admission ($p = 0.03$). Another study (2015) reported that antenatal diagnosis of polyhydramnios requires careful evaluation for underlying maternal and fetal conditions. It also noted that adverse perinatal outcomes are less frequent in idiopathic polyhydramnios compared to cases with an identifiable cause⁽¹³⁾.

Further stratification in this study showed higher NICU admission rates among women aged >30 years ($p = 0.03$). Cesarean section was significantly associated with low APGAR scores ($p = 0.04$), while no statistically significant association was found between parity and low birth weight ($p = 0.21$). A study conducted in 2008 reported that polyhydramnios occurs in approximately 2% of admitted obstetric cases and is more common in multigravida women. In about 50% of cases, no identifiable cause is found. The study also reported a perinatal mortality rate of 32%⁽¹⁴⁾.

5. CONCLUSION

Polyhydramnios in uncomplicated term pregnancies is associated with increased risks of adverse perinatal outcomes, including low APGAR scores, NICU admissions, and perinatal mortality. Advanced maternal age and cesarean delivery were found to be important contributing factors to unfavorable outcomes. Despite many cases being idiopathic, careful antenatal evaluation and monitoring remain essential. Early identification and appropriate management can help reduce maternal and neonatal complications. Further research is needed to establish optimal surveillance strategies for these pregnancies.

REFERENCES

1. Jha P, Raghu P, Kennedy AM, Sugi M, Morgan TA, Feldstein V, et al. Assessment of amniotic fluid volume in pregnancy. *Radio Graph*. 2023;43(6):e220146.
2. Huri M, Di Tommaso M, Seravalli V. Amniotic fluid disorders: from prenatal management to neonatal outcomes. *Children*. 2023;10(3):561.
3. Jalal S, Khattak S, Firdus A. Frequency of polyhydramnios among patients with preterm delivery at lady reading hospital, Peshawar. *Pak J Med Health Sci*. 2022;16(08):63-67.
4. Kechagias KS, Triantafyllidis KK, Zouridaki G, Savvidou M. Obstetric and neonatal outcomes in pregnant women with idiopathic polyhydramnios: a systematic review and meta-analysis. *Sci Rep*. 2024;14(1):1-2.
5. Bas Lando M, Urman M, Weiss Y, Srebnik N, Grisaru-Granovsky S, Farkash R, et al. Term idiopathic polyhydramnios, and labor complications. *J Clin Med*. 2023;12(3):981-86.
6. Sanjaya IN, Mulyana RS, Pangkahila ES, Prasetyo D. Management of polyhydramnios pregnancy without risk factors: a case report. *Indo J Perinatol*. 2020;1(1):9-12.
7. Gandotra N, Sharma P, Sharma A. Maternofetal outcome of post-term pregnancy: A retrospective analysis. *JK Pract*. 2021;26(3):77-81.
8. Wassan K, Sheikh S. Frequency of adverse perinatal outcome in women with polyhydramnios admitted at tertiary care hospital. *J Uni Med Dental Coll*. 2018;9(3):36-43.
9. Asadi N, Khalili A, Zarei Z, Azimi A, Kasraeian M, Foroughinia L, Salehi A, Ravanbod HR, Davoodi S, Vafaei H. Perinatal outcome in pregnancy with polyhydramnios in comparison with normal pregnancy in department of obstetrics at Shiraz University of Medical Sciences. *The Journal of Maternal-Fetal & Neonatal Medicine*. 2018 Jul 3;31(13):1696-702.
10. Lallar M, ul Haq A, Nandal R. Perinatal outcome in idiopathic polyhydramnios. *The Journal of Obstetrics and Gynecology of India*. 2015 Oct;65(5):310-4.
11. Shaikh S, Shaikh F, Fatima SS, Baloch R. Unexplained polyhydramnios and maternal fetal outcome. *Journal of Surgery Pakistan (International)*. 2018 Oct;23:4.
12. Pagan M, Magann EF, Rabie N, Steelman SC, Hu Z, Ounpraseuth S. Idiopathic polyhydramnios and pregnancy outcome: systematic review and meta-analysis. *Ultrasound in Obstetrics & Gynecology*. 2023 Mar;61(3):302-9.
13. Lallar M, ul Haq A, Nandal R. Perinatal outcome in idiopathic polyhydramnios. *The Journal of Obstetrics and Gynecology of India*. 2015 Oct;65(5):310-4.
14. Fawad A, Danish N. Frequency, causes and outcome of polyhydramnios. *Gomal Journal of Medical Sciences*. 2008;6(2).